Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Parts 22, 90, and 94 of the Commission's Rules to Permit Routine Use of Signal Boosters	)	WT Docket No. 95-70 RM-8200

COMMENTS OF THE MOBILE AND PERSONAL COMMUNICATIONS DIVSION, PRIVATE RADIO SECTION OF THE TELECOMMUNICATIONS INDUSTRIES ASSOCIATION

The Mobile and Personal Communications Division, Private Radio Section of the Telecommunications Industries Association (*TIA*) submits these comments in response to the Notice of Proposed Rule Making (*Notice*) in the above captioned proceeding.[1] The equipment manufacturers that comprise the TIA believe that signal boosters are a legitimate and useful tool in the design and implementation of land mobile radio systems and therefore strongly support the Commission's proposals. However, TIA members believe that the FCC's proposed power limitations for boosters are too conservative and recommend that these devices be permitted to operate with as much as 5 watts Effective Radiated Power (ERP) on a routine basis.

The Commission's *Notice* discusses how boosters can be used to improve communications in locations within the expected coverage area of a radio system where the signal is blocked or shielded due to natural terrain or man-made obstacles.[2] Capable of both one way or two way operation, the *Notice* points out that boosters can be used to fill in "dead spots" in locations such as valleys, tunnels, below-ground parking facilities or

---

[1] *In the matter of Amendment of Parts 22, 90, and 94 of the Commission's Rules to Permit Routine Use of Signal Boosters,* WT Docket No. 95-70, FCC 95-204 (June 22, 1995).

[2] *Notice* at para. 2.

inside cargo vessels and aircraft hangers.[3] In general, the FCC rules do not provide for the routine use of signal boosters. The instant proposal would allow the use of signal boosters by Part 22 common carrier paging operations at 931 MHz, by Part 90 land mobile operations in all frequency bands above 150 MHz, by Part 90 paging operations at 929 MHz, and by multiple address operations under Part 94 of the Rules.

As noted, TIA's members strongly support the Commission's proposals and urge expeditious action in this proceeding. In numerous circumstances, boosters provide an inexpensive and efficient means of improving system coverage. For carrier operations, this leads to better service to the public who expect ubiquitous service throughout the defined coverage area. For private radio systems, complete service area coverage improves operational efficiency and provides greater protection to public safety officers. Clearly, improved system performance is a worthwhile goal that serves the public interest.

The Commission's proposal is expressly limited to Part 22 paging operators at 931 MHz, all Part 90 operations above 150 MHz, and Part 94 multiple address stations. TIA would recommend that the FCC not limit the scope of this proceeding but, rather, ensure that boosters are available to all land mobile operators. Thus, the Commission should expand its proposals to affirmatively allow the use of signal boosters by Part 22 licensees operating in bands other than the 931 MHz paging band and by new Part 24 narrowband and broadband personal communications services. For example, there is no reason to exclude 450 MHz common carrier operations from the scope of the proposals. Rather, if the Commission's rules were adopted as proposed, these licensees would be placed at a competitive disadvantage in the technical operation of facilities *vis a* vis 900 MHz paging operators. While it may be true that the existing licensing rules for some of these services, particularly broadband PCS, may already be interpreted to allow the use of signal boosters, it still makes sense at this time to clarify that such flexibility is indeed permitted.

---

[3] *Id.*

TIA strongly supports the Commission's proposal to authorize the use of signal boosters without additional licensing requirements and to instead regulate interference potential through the equipment authorization program. Given that boosters will not be permitted to extend a station's coverage area, a requirement that TIA strongly recommends, any licensing requirement becomes superfluous and burdensome on system operators. In this instance, TIA believes that the potential for interference is sufficiently low so as to allow the industry and the user community to police this activity itself.[4] Of course, should interference to co-channel or adjacent channel users be created by a booster, the operator will be required to take immediate corrective actions.

The one final area of concern is the maximum permitted power proposed for boosters. The Commission proposed to limit the output power of boosters to 500 milliwatts. For Class B boosters designed to operate over a broadband of frequencies, the permissible output power would be determined by dividing the total available booster power by the number of authorized channels that the booster is retransmitting. The FCC's rationale behind this restriction is to approximate the effective radiated power of most hand-held portable units. In other words, from an interference perspective, the booster would act no differently than a portable radio.

As mentioned earlier, TIA recommends that the FCC's proposals be modified to allow boosters to transmit a maximum effective radiated power of 5 watts per channel. Of course, lower power levels would be permitted where appropriate. It is the opinion of the TIA that 5 watts ERP per channel would provide for more effective utilization of power boosters without increasing interference potential.

---

[4] TIA notes that when used as intended --to fill in dead spots caused by terrain or man-made shielding -- the emissions of the booster are often shielded by the obstruction. Thus, the potential for interference is further reduced and confined to limited areas.

TIA believes that ERP is a more appropriate means of specifying permitted power and will provide a greater degree of interference control.[5] It will allow installers a greater measure of flexibility to locate the booster/transmitter at greater distances from the antenna when circumstances warrant without fear that the installation would fail due to excessive line losses. Also, TIA notes that higher powered boosters may result in less overall interference potential in that lower power could necessitate the installation of more boosters, thus raising the noise produced in the band.

The Commission's intention to limit output power to 500 milliwatts is of course to reduce interference potential. TIA believes that the professional installation of boosters will do more to limit interference than any technical constraint placed upon the devices. A variety of methods are available to reduce unintended emissions including the voluntary use of directional antennas. Since many of the instances where boosters are likely to be used are in closed environments, TIA believes that interference concerns may be overstated. Rather, installers and system integrators need the technical flexibility to ensure that boosters are utilized to their maximum efficiency.

[5] TIA's proposal would not allow substantially greater powers than the FCC's. In order to get 5 watts ERP out of a 500 milliwatt transmitter, one would have to obtain about 10 dB of system gain through the antenna system. Utilizing directional antennas, it is not unlikely that booster installers could obtain more than 10 dB of system gain and thus exceed 5 watts ERP.

In summary, the TIA commends the FCC for its proposals to allow the routine use of signal boosters to improve system coverage for land mobile facilities. These devices have proven to be a useful tool when properly installed. The TIA simply asks that the Commission expand the scope of this proceeding to cover all affected land mobile operators and modify the maximum permitted power to 5 watts ERP. These changes will allow the industry to employ these devices to improve system performance in a benign fashion.

Respectfully Submitted

The Mobile and Personal Communications Division, Private Radio Section of the Telecommunications Industry Association

Eric Schimmel
Vice President
TIA
2500 Wilson Boulevard
Arlington, VA 22201
(703) 907-7700

Wayne Leland
Chariman, Private Radio Section
Mobile and Personal
Communications Division
TIA

August 14, 1995